

DOCKETED

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PLUG-IN Submetering for Electric Vehicles

Additional submitted attachment is included below.

Long Beach, CA, August 5, 2025.

Subject: “PLUG-IN Submetering for Electric Vehicles” research concept for the Electric Program Investment Charge 2026–2030 (EPIC 5) Investment Plan

To the California Energy Commission

1. **Contact information** – *Hillel Pitlik*, hillel@andromedapower.com, (949)257-5405.
2. **Organization** – *Andromeda Power, LLC* and *Verdek, LLC*.
3. **Brief description of the proposed concept and purpose**

The proposed concept, **PLUG-IN Submetering**, is a universal framework—an open, scalable approach enabling compact, self-installable solutions that plug directly into the EV and provide certified energy metering, real-time data exchange, and grid synchronization, without modifying the EV or EVSE.

The concept would support smart charging for all EV users, including renters and multi-family residents, by:

- Enabling TOU-based billing
- Supporting demand response programs
- Offering real-time energy use tracking

EPIC funds are necessary to:

- Develop embedded metrology and universal firmware
- Certify products to UL, ANSI, and NIST standards
- Demonstrate platform-level interoperability with utilities

4. How the concept will lead to technological advancement and overcome barriers (SB 96)

Barriers Addressed:

- High cost and complexity of installed submeters
- Lack of portable solutions for renters and travelers
- No user-level access to certified metering data
- Limited access to TOU billing for mobile users

Breakthroughs Introduced:

- Certified submetering via plug-and-play form factor
- Blockchain-based digital sealing and calibration
- Secure wireless connectivity (Wi-Fi/LTE/Bluetooth)
- Platform-independent integration with utility backends by using CEC VGI standards

Cost/Performance Targets:

- Target unit cost: <\$10 at scale
- Accuracy: $\pm 1\%$ (Class 1)
- Installation: plug-and-play
- Wireless diagnostics and firmware updates

Beneficiaries:

- EV owners: billing control and emissions-aware charging
- Utilities: DER forecasting and submeter-based billing
- Aggregators: scalable DER monitoring
- D&LICs: equitable participation in clean energy programs

5. Anticipated outcomes and potential benefits

- Democratization of submetering for all EV drivers
- Elimination of \$1,000+ metering retrofit costs

- Reduced emissions via GHG-aware charging
- Grid flexibility through portable load-shaping
- Cost savings of \$550/year per EV user accessing TOU rates
- Avoided grid upgrade costs (\$10B+ potential savings)

Alignment with EPIC Principles:

- **Safety:** UL certification
- **Affordability:** <\$10 target device vs. \$1,000+ retrofits
- **Equity:** renter-friendly, no-installation needed
- **Sustainability:** optimized charging, reduced GHG
- **Reliability:** MDMA compliance and utility-grade metrics

6. Metrics to evaluate impacts

- Statewide deployment volume
- Number of metered charging sessions
- % of adopters using TOU pricing
- Grid peak load shifted (in MW)
- Annual GHG reductions (tons CO₂)
- Share of deployments in D&LICs

7. References supporting the concept

- Smart metering standards: ANSI C12.20, IEC 62053-21
- SCE Submeter Billing Option¹
- MIDAS API²

¹ https://www.sce.com/factsheet/EV_Charging%E2%80%93Submeter_Billing_Option_Information_Sheet

² <https://www.energy.ca.gov/proceedings/market-informed-demand-automation-server-midas>

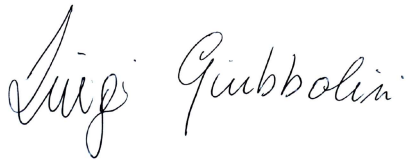
8. Support for EPIC 5 Strategic Goals

- **Transportation Electrification:** Plug-and-play access to TOU pricing and clean mobility
- **Distributed Energy Resource Integration:** Supports demand-side grid flexibility
- **Building Decarbonization:** Enables smart charging in multifamily dwellings
- **Achieving Net-Zero:** GHG-aware charging aligns load with clean energy
- **Climate Adaptation:** DR-ready architecture for grid events

This vision for PLUG-IN Submetering supports a scalable transformation of California's EV ecosystem through accessible, portable, and intelligent metering infrastructure.

Thank you for your consideration. We look forward to supporting **California's clean transportation goals**.

Sincerely,

A handwritten signature in black ink, reading 'Luigi Giubbolini'.

Luigi Giubbolini,
Andromeda Power, LLC

A handwritten signature in black ink, reading 'Guy Mannino'.

Guy Mannino
Verdek, LLC

About Andromeda Power, LLC and Verdek, LLC

Andromeda Power, LLC and Verdek, LLC are leaders in EV charging, power electronics, and grid-integrated infrastructure. Andromeda Power develops high-power AC and DC charging solutions, while Verdek provides turnkey EVSE deployment for fleets and commercial applications. Our CEC-funded Integrated Powertrain System enables EVs to fast charge directly from three-phase AC and supply three-phase AC power, supporting energy resilience and vehicle-grid integration (VGI).